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(54) BLOW MOLDING

(57)Abstract:

PURPOSE: To obtain a blow molding having excellent moldability, heat resistance, chemical resistance, shock resistance and appearance by blow molding a composition, in which fixed quantities of a polyamide resin and specified modified polyolefin are blended with a polyphenylene sulfide resin.

CONSTITUTION: A composition used is composed of a 5-80 pts.wt. polyamide resin and 5-80 pts.wt. modified polyolefin consisting of α -olefin and the glycidyl ester of α , β unsaturated carboxylic acid to a 100 pts.wt. PPS resin, and a not more than 200 pts.wt. fibrous and/or granular reinforcing material can be blended as required. The PPS resin, which is deionized and treated by at least one kind of acidic aqueous solution washing, hot water washing and organic solvent washing, is preferable. When blow molding is conducted by using the composition, a blow molding, in which no drawdown of a parison is generated, which has excellent heat resistance and shock resistance and in which no glass fiber floats, can be acquired.

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CLAIMS

[Claim(s)]

[Claim 1] The blow blow molding article characterized by coming to carry out blow molding of the polyphenylene sulfide resin constituent which blended the denaturation polyolefine 5 which consists of polyamide resin 5 - 80 weight sections, an alpha olefin, and glycidyl ester of alpha and beta-unsaturated carboxylic acid - 80 weight sections, and the fibrous and/or granular reinforcement 0 - the 200 weight sections to the polyphenylene sulfide resin 100 weight section.

[Claim 2] The blow blow molding article according to claim 1 to which polyphenylene sulfide resin is characterized by carrying out deionization processing by at least one sort of approaches chosen from acid water-solution washing processing, hot water washing processing, and organic solvent washing processing.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the polyphenylene sulfide resin system blow blow molding article excellent in a moldability, thermal resistance, chemical resistance, shock resistance, and a mold-goods appearance.

[0002]

[Description of the Prior Art] Polyphenylene sulfide resin (it is hereafter called PPS resin for short) is engineering plastics excellent in thermal resistance, chemical resistance, fire retardancy, an electrical property, etc., and the need is increasing increasingly in recent years to the application of the electrical and electric equipment and electronic parts, autoparts, a precision machinery component, etc.

[0003] However, the actual condition was that are restricted to the injection-molding method, it is most which has the small mold goods of PPS resin, for example, the application to large-sized components, such as a bottle by blow molding etc. and a tank, is seldom almost made from the approach of carrying out fabrication of the PPS resin having the very high melting fluidity of PPS resin.

[0004] and the PPS resin which has a degree of polymerization with it although the blow molding container of the PPS resin indicated by JP,61-255832,A, for example and its manufacturing method are known as an application to the blow molding of PPS resin -- using -- in addition -- and a special injection extension blow molding method cannot be combined, and it cannot be said that the blow molding technique of general-purpose PPS resin is established. [this remarkable approach and] [high]

[0005] The present condition is that the technique of manufacturing the ducts in an engine room by blow molding has spread in autoparts on the other hand, and the blow molding ingredient with which current also had the chemical resistance and shock resistance which whose thermal resistance was still higher from the polyamide system ingredient of thermal resistance being inadequate although the polyamide system ingredient is mainly used, and were moreover excellent is demanded.

[0006] Then, this invention persons proposed previously the blow blow molding article obtained by carrying out blow molding of the constituent which consists of PPS resin and an epoxy group content polyolefine system copolymer as what meets such a demand as Japanese Patent Application No. No. 33147 [two to].

[0007] However, although the blow blow molding article obtained by the proposal by the above-mentioned this invention persons was excellent in blow molding nature, thermal resistance, chemical resistance, and shock resistance, when it added especially reinforcement, such as a glass fiber, since the float of fiberglass reinforcement was produced and the surface appearance of mold goods was inferior, amelioration of this point was desired.

[0008]

[Problem(s) to be Solved by the Invention] The place which this invention is attained as a result of considering amelioration of the trouble which the conventional PPS resin system blow blow molding article mentioned above has as a technical problem, and is made into the purpose has a moldability, thermal resistance, chemical resistance, shock resistance, and a mold-goods appearance in offering the

polyphenylene sulfide resin system blow blow molding article which balanced and was excellent.

[0009] According to examination of this invention persons, in addition to the denaturation polyolefine which consists of an alpha olefin and glycidyl ester of alpha and beta-unsaturated carboxylic acid, the blow blow molding article it is unrefined from the constituent which carried out the amount combination of specification of the polyamide resin further filled the above-mentioned purpose to polyphenylene sulfide resin, and excelling not only in thermal resistance and a mechanical property but in economical efficiency was found out.

[0010]

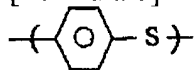
[Means for Solving the Problem] That is, the blow blow molding article characterized by this invention coming to carry out blow molding of the polyphenylene sulfide resin constituent which blended the denaturation polyolefine 5 which consists of polyamide resin 5 - 80 weight sections, an alpha olefin, and glycidyl ester of alpha and beta-unsaturated carboxylic acid - 80 weight sections, and the fibrous and/or granular reinforcement 0 - the 200 weight sections to the PPS resin 100 weight section is offered.

[0011] In addition, the PPS resin used by this invention demonstrates much more suitable effectiveness, when deionization processing is performed.

[0012] the repeating unit the PPS resin used by this invention is indicated to be with the following structure expression -- more than 70 mol % -- more -- desirable -- more than 90 mol % -- it is the included polymer, and since thermal resistance is spoiled, the following repeating unit is not desirable less than [70 mol %].

[0013]

[Formula 1]



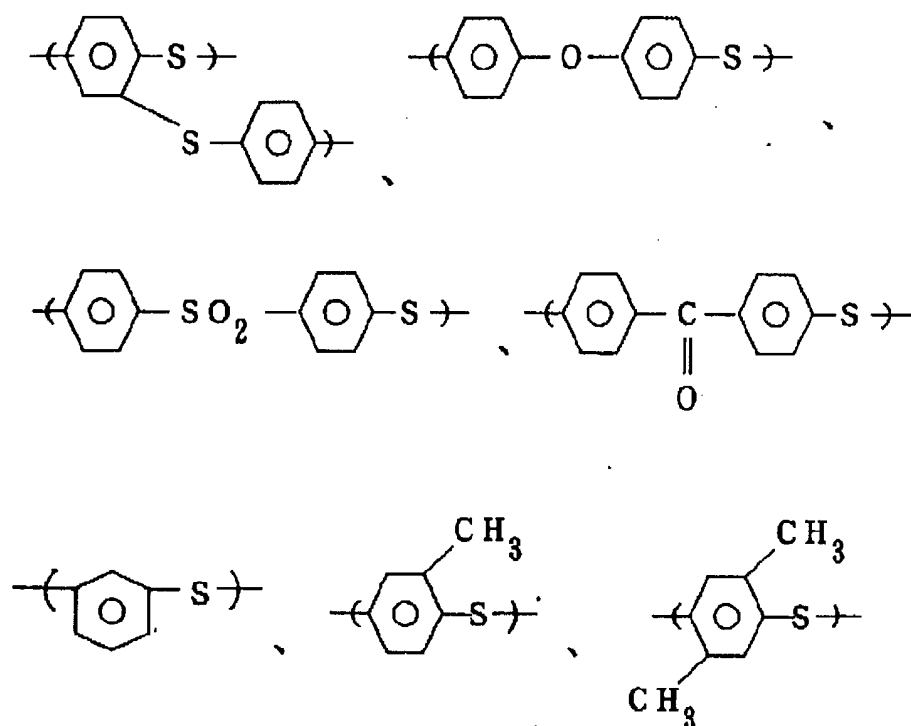
[0014] The polymer with comparatively small molecular weight from which PPS resin is generally obtained according to the manufacturing method represented with JP,45-3368,B, The essential target obtained according to the manufacturing method represented with JP,52-12240,B has the polymer of the amount of macromolecules etc. comparatively by the line. In the polymer obtained by the approach given [said] in JP,45-3368,B, it is also possible heating under an after [a polymerization] oxygen ambient atmosphere, or by adding and heating cross linking agents, such as a peroxide, to high-polymerization-size and to use.

[0015] In this invention, although it is also possible to use the PPS resin obtained by what kind of approach, the polymer of the amount of macromolecules is essentially comparatively used more preferably by the line.

[0016] Moreover, PPS resin can constitute less than [of the repeating unit / 30 mol %] from a repeating unit which has the following structure expression.

[0017]

[Formula 2]



[0018] After generating the PPS resin used by this invention through the above-mentioned polymerization process, it is desirable to perform deionization processing by acid water-solution washing processing, hot water washing processing, or organic solvent washing processing.

[0019] It is as follows when performing the above-mentioned acid water-solution washing processing.

[0020] That is, although there is especially no limit, an acetic acid, a hydrochloric acid, a sulfuric acid, a phosphoric acid, silicic acid, carbonic acid, a propyl acid, etc. are mentioned and an acetic acid and a hydrochloric acid may be more preferably used especially if it does not have the operation which disassembles PPS resin as an acid used for acid water-solution washing processing of PPS resin by this invention, what it decomposes [what] and degrades PPS resin like a nitric acid is not desirable.

[0021] There is the approach of making it PPS resin immersed in the water solution of an acid etc., and the approach of acid water-solution washing processing can also be agitated or heated suitably as occasion demands. For example, when using an acetic acid, sufficient effectiveness is acquired by being immersed and agitating PPS resin powder for 30 minutes to the inside which heated the water solution of pH4 at 80-90 degrees C. The PPS resin to which acid treatment was performed needs to wash several times with water or warm water in order to remove a remaining acid or a remaining salt etc. physically.

[0022] As for the water used for washing, it is desirable that they are distilled water or deionized water in the semantics which does not spoil the effectiveness of the desirable chemical denaturation of the PPS resin by acid treatment.

[0023] Moreover, it is as follows when performing hot water washing processing.

[0024] That is, in carrying out hot water processing of the PPS resin used in this invention, it is important to make more preferably 100 degrees C or more of 120 degrees C or more of 150 degrees C or more of temperature of hot water into 170 degrees C or more preferably especially still more preferably, and at less than 100 degrees C, since the effectiveness of the desirable chemical denaturation of PPS resin is small, it is not desirable.

[0025] In order to discover the effectiveness of the desirable chemical denaturation of the PPS resin by hot water washing processing of this invention, as for the water to be used, it is desirable that they are distilled water or deionized water. Actuation of hot water processing feeds the PPS resin of the specified quantity into the water of the specified quantity, and is usually performed by heating and agitating within a pressurized container. Although the rate of PPS resin and water has a desirable direction with

much water, the bath ratio of 200g or less of PPS resin is usually chosen to 1l. of water.

[0026] Moreover, since decomposition of an end group is not desirable, considering as the bottom of an inert atmosphere is desirable [the ambient atmosphere of hot water processing] in order to avoid this. Furthermore, in order to remove physically the component which remains the PPS resin which finished this hot water processing actuation, it is desirable that warm water washes several times.

[0027] Furthermore, in organic solvent washing processing, it is as follows.

[0028] namely, as an organic solvent used for washing of PPS resin by this invention If it does not have the operation which disassembles PPS resin, there will be especially no limit. For example, N-methyl pyrrolidone, dimethylformamide, dimethylacetamide, 1, 3-dimethyl imidazolidinone, hexa methyl phospho RASUAMIDO, Nitrogen-containing polar solvents, such as piperazinone, dimethyl sulfoxide, a dimethyl sulfone, Sulfoxide sulfone system solvents, such as a sulfolane, an acetone, a methyl ethyl ketone, Ketone system solvents, such as a diethyl ketone and an acetophenone, wood ether, Ether system solvents, such as the dipropyl ether, dioxane, and a tetrahydrofuran, Chloroform, a methylene chloride, a trichloroethylene, 2 ethylene chlorides, Perchloroethylene, mono-chloroethane, dichloroethane, tetrachloroethane, Halogen system solvents, such as par chloroethane and chlorobenzene, a methanol, Ethanol, propanol, a butanol, a pentanol, ethylene glycol, Aromatic hydrocarbon system solvents, such as alcoholic phenol system solvents, such as propylene glycol, a phenol, cresol, a polyethylene glycol, and a polypropylene glycol, and benzene, toluene, and a xylene, etc. are mentioned. Also among these organic solvents, especially use of N-methyl pyrrolidone, an acetone, dimethylformamide, chloroform, etc. is desirable. Moreover, these organic solvents are used by one kind or two kinds or more of mixed stock.

[0029] It is also possible for there to be the approach of making it PPS resin immersed into an organic solvent etc. as the approach of washing by the organic solvent, and to agitate or heat suitably as occasion demands.

[0030] There is especially no limit about the washing temperature at the time of an organic solvent washing PPS resin, and the temperature of about [ordinary temperature -300 degree C] arbitration can be chosen. Here, although there is an inclination for washing effectiveness to become high so that washing temperature becomes high, effectiveness is usually enough acquired at ordinary temperature - 150 degree C washing temperature.

[0031] Moreover, it is also possible in a pressurized container to wash under pressurization at the temperature more than the boiling point of an organic solvent. Moreover, there is especially no limit also about washing time amount. For example, although based also on washing conditions, in batch type washing, sufficient effectiveness is acquired by usually washing more than for 5 minutes. Moreover, washing with continuous system is also possible.

[0032] Although it is enough that an organic solvent just washes the PPS resin generated by the polymerization, in order to demonstrate the effectiveness of this invention further, it is desirable to combine with backwashing by water or warm water washing. Moreover, by washing with water or warm water, when high-boiling point water solubility organic solvents, such as N-methyl pyrrolidone, are used, since removal of a residual organic solvent can carry out easily, it is desirable after organic solvent washing. As for the water used for these washing, it is desirable that they are distilled water or deionized water.

[0033] Although the thing of any melt viscosity can be used if especially the melt viscosity of the PPS resin used by this invention does not have a limit and kneading with polyamide resin and denaturation polyolefine is possible, that 320 degrees C and whose melt viscosity in shear rate 10 sec-1 are usually 100-10,000poise is used.

[0034] The polyamide resin used by this invention is a polyamide which makes a main constituent amino acid, a lactam or diamine, and dicarboxylic acid.

[0035] As an example of representation of the main constituent, 6-aminocaproic acid, 11-amino undecanoic acid, Amino acid, such as 12-amino dodecanoic acid and an paraamino methyl benzoic acid, Lactams, such as epsilon-amino caprolactam and omega-RAURO lactam, a tetramethylenediamine, A hexamethylenediamine, undecamethylene diamine, dodeca methylene diamine, 2, 2, 4-4, a 4-trimethyl

hexamethylenediamine, 5-methyl nonamethylene diamine, [2 and 4] Meta-xylylene diamine, PARAKI silylene diamine, 1, 3-screw (aminomethyl) cyclohexane, 1, 4-screw (aminomethyl) cyclohexane, 1-amino-3-aminomethyl - 3, 5, and 5-trimethyl cyclohexane, Screw (4-amino cyclohexyl) methane, screw (3-methyl-4-amino cyclohexyl) methane, 2 and 2-screw (4-amino cyclohexyl) propane, a screw (aminopropyl) piperazine, The diamine of aliphatic series, such as an aminoethyl piperazine, an alicycle group, and aromatic series, And an adipic acid, a suberic acid, an azelaic acid, a sebacic acid, dodecane diacid, A terephthalic acid, isophthalic acid, 2-chloro terephthalic acid, 2-methyl terephthalic acid, 5-methyl isophthalic acid, 5-sodium sulfoisophtharate, a hexahydro terephthalic acid, The dicarboxylic acid of aliphatic series, such as hexahydro isophthalic acid, an alicycle group, and aromatic series is mentioned, and the polyamide homopolymer or copolymer guided from these raw materials can be respectively used in the form of independent or mixture in this invention.

[0036] In this invention as useful polyamide resin, especially A PORIKA pro amide (nylon 6), polyhexamethylene adipamide (Nylon 66), Polytetra ethylene adipamide (Nylon 46), polyhexamethylene sebacamide (Nylon 610), Polyhexamethylene DODEKAMIDO (Nylon 612), polyundecamethylene adipamide (nylon 116), The poly dodecane amide (Nylon 12), the poly undecane amide (Nylon 11), A PORIKA pro amide / polyhexamethylene terephthalamide copolymer (nylon 6 / 6T), polyhexamethylene adipamide / polyhexamethylene terephthalamide copolymer (Nylon 66 / 6T), etc. are mentioned.

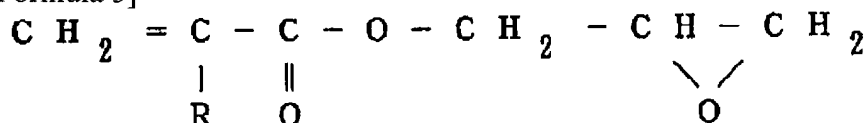
[0037] There is no limit especially in the polymerization degree of the polyamide resin used here, and the relative viscosity measured at 25 degrees C can choose the thing in the range of 1.5-6.0 as arbitration among 1% of concentrated-sulfuric-acid solution.

[0038] As an example of the alpha olefin in the denaturation polyolefine which consists of an alpha olefin used by this invention, and glycidyl ester of alpha and beta-unsaturated carboxylic acid, although ethylene, a propylene, 1-butene, 1-pentene, 1-hexene, etc. are mentioned, ethylene is desirable especially.

[0039] Moreover, the glycidyl ester of alpha and beta-unsaturated carboxylic acid is a compound expressed with the following general formula, metaglycidyl acrylate, glycidyl methacrylate, glycidyl ethacrylate, etc. are specifically mentioned, and glycidyl methacrylate is used preferably even especially in inside.

[0040]

[Formula 3]



[0041] (However, R in a formula shows a hydrogen atom or the alkyl group of carbon numbers 1-6.) 3 - 40% of the weight of the range is preferably suitable for the amount of copolymerization of the glycidyl ester of alpha in denaturation polyolefine, and beta-unsaturated carboxylic acid one to 50% of the weight.

[0042] Furthermore, in the denaturation polyolefine used by this invention, acrylic acids, such as vinyl ester, such as other partial saturation monomers which can be copolymerized, for example, vinyl ether, vinyl acetate, and propionic-acid vinyl, methyl, ethyl, and propyl, and methacrylic ester, acrylonitrile, styrene, etc. can also be copolymerized in the range which does not spoil the property.

[0043] the blending ratio of coal of the PPS resin in the resin constituent used by this invention, polyamide resin, and denaturation polyolefine -- the PPS resin 100 weight section -- receiving -- polyamide resin 5 - 80 weight sections -- desirable -- 10 - 70 weight section, and the denaturation polyolefine 5 - 80 weight sections -- it is the range of 10 - 70 weight section preferably.

[0044] When the loadings of polyamide resin do not fulfill 5 weight sections, the surface appearance amelioration effectiveness of a blow blow molding article is inadequate, and since a heat-resistant, chemical-resistant fall takes place when loadings exceed 80 weight sections on the other hand, it is not

desirable.

[0045] Moreover, when the drawdown of parison becomes large at the time of blow molding, and it becomes easy to produce thick nonuniformity in a blow molding article, when the loadings of denaturation polyolefine do not fulfill 5 weight sections, and loadings exceed 80 weight sections on the other hand, since a heat-resistant fall becomes remarkable, it is not desirable.

[0046] In this invention, although fibrous and/or granular reinforcement are not indispensable components, it is possible to blend in the range which does not exceed the 200 weight sections to the PPS resin 100 weight section if needed, and it is possible by usually blending in the range of the 10 - 150 weight section to aim at improvement in reinforcement, rigidity, thermal resistance, dimensional stability, etc.

[0047] As these fibrous reinforcement, a glass fiber, an alumina fiber, silicon carbide fiber, ceramic fiber, an asbestos fiber, stone KOU fiber, a metal fiber, a carbon fiber, etc. are mentioned.

[0048] Moreover, as granular reinforcement, sulfates, such as carbonates, such as metallic oxides, such as silicate, such as a WARASUTE night, a sericite, a kaolin, a mica, clay, a bentonite, asbestos, talc, and alumina silicate, an alumina, a silicon chloride, magnesium oxide, a zirconium dioxide, and titanium oxide, a calcium carbonate, a magnesium carbonate, and a dolomite, a calcium sulfate, and a barium sulfate, a glass bead, boron nitride, silicon carbide, a silica, etc. may be mentioned, and these may be hollow. These reinforcement can use two or more sorts together, and they can be used, carrying out conditioning of them by coupling agents, such as a silane system and a titanium system, as occasion demands.

[0049] After there being no limit especially in the preparation approach of the resin constituent used by this invention and carrying out the dryblend of the reinforcement using a ribbon blender, a Henschel mixer, V blender, etc. the powder of PPS resin, polyamide resin, and denaturation polyolefine, a pellet, a split, and if needed, the approach of carrying out melting kneading using a Banbury mixer, a roll mill, a monopodium or a biaxial extruder, a kneader, etc. is mentioned. The approach of carrying out melting kneading using the monopodium or the biaxial extruder which has sufficient kneading force especially is typical.

[0050] Moreover, to the resin constituent which consists of the PPS resin, polyamide resin, and denaturation polyolefine which are used by this invention, a usual additive and usual little other type polymers, such as an antioxidant, a thermostabilizer, lubricant, a crystalline-nucleus agent, an ultraviolet-rays inhibitor, a coloring agent, and a flame retarder, can be added in the range which does not spoil the effectiveness of this invention.

[0051] The melt viscosity of the resin constituent used by thermoplastic elastomer, such as a polyolefine system elastomer, a diene system elastomer or its water garnish, an acrylic elastomer, a polyamide elastomer, a polyester elastomer, and a silicone elastomer, and this invention can be adjusted as an other type polymer which can be added especially, and it is useful.

[0052] Furthermore, it is the purpose which controls the degree of cross linking of PPS resin, and it is also possible to blend bridge formation inhibitors indicated by a bridge formation accelerator or JP,58-204045,A, JP,58-204046,A, etc., such as the usual peroxidation agent and a thio phosphinic acid metal salt indicated by JP,59-131650,A, such as a dialkyl tin dicarboxy rate and aminotriazole.

[0053] A well-known blow molding method, i.e., by considering as the 2 made contemptuous glance-like - three-dimension hit sky Plastic solid, can supply a resin constituent to an extruder fundamentally, can carry out melting extrusion, parison is made to be able to form, and the blow molding article of this invention can usually obtain the resin constituent obtained as mentioned above.

[0054] Usually, of course, it is also possible to apply the multilayer blow molding method which can mention the direct blowing method, the accumulator blowing method, the multi-dimension blowing method, etc., and is used in combination with other ingredients as an example of representation of a well-known blow molding method, an exchange blow molding method, etc.

[0055] Thus, as an example of representation of the blow molding article of this invention fabricated, a bottle, a tank, a duct, etc. are mentioned and these are useful as a duct, a pipe, etc. in the container for drug solutions, air-conditioning ducts, and an automobile engine room as a blow molding

article which was excellent in thermal resistance, chemical resistance, shock resistance, and a mold-goods appearance.

[0056]

[Example] An example is given to below and this invention is explained to it in more detail.

[0057] In addition, many properties described for the example and the example of a comparison which are described below were measured by the following approach.

[0058] (1) Moldability : after having supplied the resin constituent pellet to the blow molding machine possessing 50mmphi extruder, performing extrusion at 320 degrees C of cylinder temperatures and fabricating parison with an outer diameter [of 100mm], and a thickness of 4mm, air was blown within metal mold and one-side 150mm and a forward square pole mold container with a height of 500mm were fabricated. The thickness of the upper part of this mold-goods drum section and the five lower parts each was measured, and it judged that that to which the difference of up average thickness and lower average thickness exceeds a less than 1mm thing, and the difference of moldability fitness and the above-mentioned thickness exceeds 1mm is [a moldability] poor.

[0059] (2) Surface appearance : visual observation of the appearance of the above-mentioned container was carried out, and the thing without the float of reinforcement, such as a glass fiber, was judged to be good, and it judged that what similarly has a float is poor.

[0060] (3) Thermal resistance : when it processed at predetermined temperature for 1 hour, having applied the 2.5kg load to the drum section of the above-mentioned container, deformation measured the maximum temperature used as less than 2mm, and considered as the heat-resistant standard.

[0061] (4) Shock resistance : the above-mentioned container was made to fall from height of 1m to a concrete above the floor level, and the visual judgment of breakage of a container and the existence of a crack was carried out. Although it did not examine and damage by n= 20, the number was counted, and it expressed as the percentage as a rate of un-destroying, and considered as the shock-proof standard.

[0062] The example 1 (polymerization of PPS resin) of reference

The temperature up was gradually carried out to 205 degrees C, teaching and agitating 3.20kg (25 mols and 40% of water of crystallization being included) of sodium sulfides, 4g of sodium hydroxides, 1.36kg (about ten mols) of sodium acetate trihydrate, and 7.9kg (it being hereafter called NMP for short) of N-methyl-2-pyrrolidones to an autoclave, and about 1.5l. of ruble floods containing 1.36kg of water was removed.

[0063] 1 and 4-dichlorobenzene 3.75kg (25.5 mols) and NMP2kg were added to residual mixture, and it heated at 265 degrees C for 3 hours. 70-degree C warm water washed the resultant 5 times, reduced pressure drying was carried out at 80 degrees C for 24 hours, and about 2kg (P-1) of powdered PPS resin of melt viscosity about 1,500 Boas (320 degrees C, shear rate 10sec-1) was obtained.

[0064] The same actuation was repeated and the example of a publication was presented below.

[0065] The example 2 (acid water-solution washing processing of PPS resin) of reference

It filtered, after throwing in about 2kg of PPS resin powder obtained in the example 1 of reference in 20l. of acetic-acid water solutions of pH4 heated by 90 degrees C and continuing agitating it for about 30 minutes, it washed by about 90-degree C deionized water until pH of filtrate was set to 7, and reduced pressure drying was carried out at 120 degrees C for 24 hours, it presupposed that it is powdered, and acid solution washing processing PPS resin (P-2) was obtained.

[0066] The example 3 (hot water washing processing of PPS resin) of reference

It cooled, after keeping it warm for about 30 minutes, having carried out the temperature up to 175 degrees C, and agitating, after teaching 10l. of deionized water to the autoclave and sealing it by ordinary pressure, about 2kg of PPS resin powder obtained in the example 1 of reference, and. Contents were taken out and filtered and actuation of it having been immersed, having agitated PPS resin and filtering it in about 10l. of 70-degree C deionized water was repeated further 5 times. Reduced pressure drying was carried out at 120 degrees C after that for 24 hours, and hot water washing processing PPS resin (P-3) was obtained.

[0067] The example 4 (organic solvent washing processing of PPS resin) of reference

It filtered, after throwing in about 2kg of powder obtained in the example 1 of reference in 20l. of NMP

(s) heated at 100 degrees C and agitating it for about 30 minutes, and about 90-degree C ion exchange water washed continuously. Reduced pressure drying of this thing was carried out at 120 degrees C for 24 hours, and NMP washing processing PPS resin (P-4) was obtained.

[0068] After carrying out the dryblend of the acid water-solution washing processing PPS resin (P-2) 100 weight section obtained in the example 2 of example 1 reference, the PORIKA pro amide 50 weight section of relative viscosity 3.4, ethylene / glycidyl methacrylate = 88 / 12 (% of the weight) copolymer 50 weight section, and the glass fiber 50 weight section with a Henschel mixer, they are supplied to the hopper of 40mmphi single screw extruder, and they are the cylinder temperature of 300 degrees C, and screw-speed 80rpm. It pelletized by performing melting kneading on conditions.

[0069] After carrying out hot air drying of this pellet at 140 degrees C for 4 hours, one-side 150mm and a forward square pole mold container with a height of 500mm were fabricated using the above-mentioned blow molding machine.

[0070] Consequently, the blow blow molding article which has the extremely excellent surface appearance which does not have the drawdown of the parison at the time of blow molding, and does not have the float of the glass fiber on the front face of mold goods was obtained. It was as being shown in Table 2, and the physical properties of this blow blow molding article did not have the thickness deviation in mold goods, either, and were good. [of thermal resistance and shock resistance]

[0071] Except having omitted use of an example of comparison 1 PORIKA pro amide, melting kneading was performed completely like the example 1, and blow molding was presented with the obtained pellet.

[0072] Consequently, although the blow blow molding article which has the outstanding thermal resistance and the shock resistance which do not have the drawdown of the parison at the time of blow molding, and do not have thickness deviation was obtained as shown in Table 2, the feeling of a rough deposit resulting from the float of a glass fiber was shown in the front face of these mold goods, and the appearance was poor.

[0073] Melting kneading and blow molding were carried out in the same procedure as an example 1 except having changed the class and loadings of an example 2 - 6PPS resin, polyamide resin, and denaturation polyolefine, as shown in Table 1.

[0074] In addition, E/GMA means a copolymer for a copolymer in nylon 6 T / 66 all over Table 1 again ethylene / glycidyl methacrylate = 88/12% of the weight polyhexamethylene terephthalamide / polyhexamethylene adipamide = 30/70% of the weight.

[0075] Consequently, the blow blow molding article which has the extremely excellent surface appearance which does not have the drawdown of the parison at the time of blow molding in the case of which, and does not have the float of the glass fiber on the front face of mold goods was obtained. The physical properties of such blow blow molding articles were as being shown according to Table 2, and each the homogeneity, thermal resistance, and shock resistance of mold goods were good.

[0076]

[Table 1]

【表 1】

成 分 (重量部)	実施例 1	実施例 2	実施例 3	実施例 4	実施例 5	実施例 6	比較例 1
PPS-1						100	
PPS-2	100	100			100		100
PPS-3			100				
PPS-4				100			
ナイロン6	50			50			
ナイロン66		50			50	30	
ナイロン6T/66			70				
E/GMA	50	40	30	40	30	40	50
ガラス繊維	50		30	60	30	20	50
炭素繊維		70					
マイカ					30		
ワラストナイト						50	

[0077]

[Table 2]

【表 2】

項 目	実施例 1	実施例 2	実施例 3	実施例 4	実施例 5	実施例 6	比較例 1
成 形 性	良	良	良	良	良	良	良
表 面 外 観	良	良	良	良	良	良	不良
耐 熱 性 (°C)	170	188	164	174	183	179	175
耐 衝 撃 性 (%)	100	100	90	100	95	90	90

[0078]

[Effect of the Invention] The blow blow molding article of this invention has the outstanding blow molding nature, thermal resistance, shock resistance, and a mold-goods appearance, and they can be beneficially used for it to applications, such as ducts of a chemical-resistant tank, a bottle, and an automobile.

[Translation done.]